

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

K-2021

Applicant : Masato Yoshikawa et al

Title : TRANSPARENT ELECTRODDUCTIVE FILM,
MANUFACTURING METHOD THEREOF, AND TOUCH PANEL

Serial No. :

Filed : November 21, 2001

Group Art Unit :

Hon. Commissioner of Patents and Trademarks
Washington, D. C. 20231

November 21, 2001

PRELIMINARY AMENDMENT

Sir:

Preliminary to examination, please amend the claims 4, 5, 9, 10, 11, 13, 14, 20, 21, 25, 26, 30, 31, 32, 33, 34, 35, 36, 37 and 40. The mark-up version and clean version of claims are attached herewith.

REMARKS

The preliminary amendment has been filed to change multiple dependency of claims 4, 5, 9, 10, 11, 13, 14, 20, 21, 25, 26, 30, 31, 32, 33, 34, 35, 36, 37 and 40 to single dependency.

Respectfully submitted,
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AMENDED CLAIMS

Version with markings to show changes made

4. (Amended) A transparent electroconductive film as claimed in
5 claim 2 [or 3], wherein said primary layer is formed by vapor
deposition.

5. (Amended) A transparent electroconductive film as claimed in
[any one of] claim[s] 1 [to 4], wherein said primary layer has a
10 thickness of 1nm to 50 μ m.

9. (Amended) A transparent electroconductive film as claimed in
[any one of] claim[s] 5 [to 8], wherein said particles of silicon
compound have an average diameter of 1nm to 5 μ m, and are included
15 in said primary layer at a weight percentage of 1 to 90% to said
ultraviolet-curing resin.

10. (Amended) A transparent electroconductive film as claimed in
[any one of] claim[s] 5 [to 9], wherein said primary layer has a
20 thickness of 1nm to 10 μ m.

11. (Amended) A transparent electroconductive film as claimed in
[any one of] claim[s] 1 [to 10], wherein said electroconductive
thin film consists of metal oxide.

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13. (Amended) A transparent electroconductive film as claimed in
claim 11 [or 12], wherein said electroconductive thin film has a
thickness of 1 to 500nm.

14. (Amended) A method for manufacturing a transparent
electroconductive film as claimed in [any one of] claim[s] 2 [to
4], wherein said method includes a process of forming said primary
layer by coating said polymer film with said silicon compound or a
5 liquid substrate including said silicon compound.

20. (Amended) A touch panel, wherein said touch panel is equipped
with a transparent electroconductive film as claimed in [any one
of] claim[s] 1 [to13].

10 21. (Amended) A touch panel, wherein said touch panel is equipped
with a transparent electroconductive film produced by a method for
manufacturing a transparent electroconductive film as claimed in
[any one of] claim[s] 14 [to19].

15 25. (Amended) A transparent electroconductive film as claimed in
claim 23 [or 24], wherein said primary layer is a layer formed by
vapor deposition.

20 26. (Amended) A transparent electroconductive film as claimed in
[any one of] claim[s] 22 [to 25], wherein said primary layer has a
thickness of 1nm to 50 μ m.

25 30. (Amended) A transparent electroconductive film as claimed in
[any one of] claim[s] 27 [to 29], wherein said particles of silicon
compound have an average diameter of 1nm to 5 μ m, and are included
in said primary layer at a weight percentage of 1 to 90% to said
ultraviolet-curing resin.

31. (Amended) A transparent electroconductive film as claimed in [any one of] claim[s] 27 [to 30], wherein said primary layer has a thickness of 1nm to 10 μ m.

5 32. (Amended) A transparent electroconductive film as claimed in [any one of] claim[s] 22 [to 31], wherein said metal-compound layer is made up of at least one selected from the group consisting of ITO, In₂O₃, SnO₂, ZnO, TiO₂, SiO₂ and SiN.

10 33. (Amended) A transparent electroconductive film as claimed in [any one of] claim[s] 22 [to 31], wherein said metal-compound layer is made up of composite metal composed of at least two selected from the group consisting of ITO, In₂O₃, SnO₂, ZnO, TiO₂, SiO₂ and SiN.

15 34. (Amended) A transparent electroconductive film as claimed in [any one of] claim[s] 22 [to 33], wherein said electroconductive-metal layer is made up of at least one selected from the group consisting of Ag, Au, Pt, Cu, Al, Cr, Ti, Zn, Sn, 20 Ni, Co, Hf, Nb, Ta, W, Zr, Pb, Pd and In.

25 35. (Amended) A transparent electroconductive film as claimed in [any one of] claim[s] 22 [to 34], wherein said multi-lamination film is composed of metal-compound layers and electroconductive-metal layers which are laminated on, alternately.

36. (Amended) A method for manufacturing a transparent electroconductive film as claimed in [any one of] claim[s] 22 [to 35], wherein said method includes a process of forming said primary

layer by coating said polymer film with said silicon compound or a liquid substrate including said silicon compound.

37. (Amended) A method for manufacturing a transparent
5 electroconductive film claimed in [any one of] claim[s] 22 [to 36],
wherein said method includes a process of forming said primary
layer by depositing said silicon compound on said polymer film by a
physical vapor - depositing process such as vacuum spraying
process, sputtering process, ion plating process, etc., or
10 by a chemical vapor-depositing process such as CVD process, etc.

40. (Amended) A method for manufacturing a transparent
electroconductive film as claimed in [any one of] claim[s] 37 [to
39], wherein the SiC target which is produced by sintering a
15 mixture composed of silicon carbide powder and a nonmetal-based
sintering assistant is used as said target material.

AMENDED CLAIMS-Clean Version

4. (Amended) A transparent electroconductive film as claimed in claim 2, wherein said primary layer is formed by vapor deposition.

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5. (Amended) A transparent electroconductive film as claimed in claim 1, wherein said primary layer has a thickness of 1nm to $50\mu\text{m}$.

9. (Amended) A transparent electroconductive film as claimed in claim 5, wherein said particles of silicon compound have an average diameter of 1nm to $5\mu\text{m}$, and are included in said primary layer at a weight percentage of 1 to 90% to said ultraviolet-curing resin.

10. (Amended) A transparent electroconductive film as claimed in claim 5, wherein said primary layer has a thickness of 1nm to $10\mu\text{m}$.

15. (Amended) A transparent electroconductive film as claimed in claim 1, wherein said electroconductive thin film consists of metal oxide.

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13. (Amended) A transparent electroconductive film as claimed in claim 11, wherein said electroconductive thin film has a thickness of 1 to 500nm.

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14. (Amended) A method for manufacturing a transparent electroconductive film as claimed in claim 2, wherein said method includes a process of forming said primary layer by coating said polymer film with said silicon compound or a liquid substrate including said silicon compound.

20. (Amended) A touch panel, wherein said touch panel is equipped with a transparent electroconductive film as claimed in claim 1.

21. (Amended) A touch panel, wherein said touch panel is equipped
5 with a transparent electroconductive film produced by a method for manufacturing a transparent electroconductive film as claimed in claim 14.

25. (Amended) A transparent electroconductive film as claimed in
10 claim 23, wherein said primary layer is a layer formed by vapor deposition.

26. (Amended) A transparent electroconductive film as claimed in
15 claim 22, wherein said primary layer has a thickness of 1nm to 50 μ m.

30. (Amended) A transparent electroconductive film as claimed in
claim 27, wherein said particles of silicon compound have an
average diameter of 1nm to 5 μ m, and are included in said primary
20 layer at a weight percentage of 1 to 90% to said ultraviolet-curing resin.

31. (Amended) A transparent electroconductive film as claimed in
claim 27, wherein said primary layer has a thickness of 1nm to
25 10 μ m.

32. (Amended) A transparent electroconductive film as claimed in
claim 22, wherein said metal-compound layer is made up of at least
one selected from the group consisting of ITO, In₂O₃, SnO₂, ZnO,

32. (Amended) A transparent electroconductive film as claimed in claim 22, wherein said metal-compound layer is made up of at least one selected from the group consisting of ITO, In_2O_3 , SnO_2 , ZnO , TiO_2 , SiO_2 and SiN .

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33. (Amended) A transparent electroconductive film as claimed in claim 22, wherein said metal-compound layer is made up of composite metal composed of at least two selected from the group consisting of ITO, In_2O_3 , SnO_2 , ZnO , TiO_2 , SiO_2 and SiN .

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34. (Amended) A transparent electroconductive film as claimed in claim 22, wherein said electroconductive-metal layer is made up of at least one selected from the group consisting of Ag, Au, Pt, Cu, Al, Cr, Ti, Zn, Sn, Ni, Co, Hf, Nb, Ta, W, Zr, Pb, Pd and In.

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35. (Amended) A transparent electroconductive film as claimed in claim 22, wherein said multi-lamination film is composed of metal-compound layers and electroconductive-metal layers which are laminated on, alternately.

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36. (Amended) A method for manufacturing a transparent electroconductive film as claimed in claim 22, wherein said method includes a process of forming said primary layer by coating said polymer film with said silicon compound or a liquid substrate including said silicon compound.

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37. (Amended) A method for manufacturing a transparent electroconductive film claimed in claim 22, wherein said method includes a process of forming said primary layer by depositing said

silicon compound on said polymer film by a physical vapor -
depositing process such as vacuum spraying process, sputtering
process, ion plating process, etc., or by a chemical
vapor-depositing process such as CVD process, etc.

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40. (Amended) A method for manufacturing a transparent
electroconductive film as claimed in claim 37, wherein the SiC
target which is produced by sintering a mixture composed of silicon
carbide powder and a nonmetal-based sintering assistant is used as
10 said target material.